

Docket No. 293024US0PCT



IFW

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE APPLICATION OF: Stefan BEISSERT, et al.

SERIAL NO: 10/584,766

GAU: 1646

FILED: June 28, 2006

EXAMINER:

FOR: MEANS FOR STIMULATION AND ACTIVATION OF HAIR GROWTH BY IL-15

**INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97**

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicant(s) wish to disclose the following information.

**REFERENCES**

- ☒ The applicant(s) wish to make of record the references listed on the attached form PTO-1449, some of which are cited in the attached International Search Report. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

**RELATED CASES**

- ☐ Attached is a list of applicant's pending application(s), published application(s) or issued patent(s) which may be related to the present application. In accordance with the waiver of 37 CFR 1.98 dated September 21, 2004, copies of the cited pending applications are not provided. Cited published and/or issued patents, if any, are listed on the attached PTO form 1449.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

**CERTIFICATION**

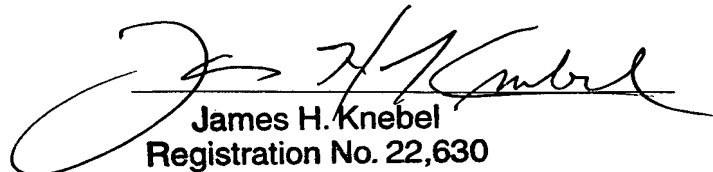
- ☐ Each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- ☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

**DEPOSIT ACCOUNT**

- ☒ Please charge any additional fees for the papers being filed herewith and for which no check or credit card payment is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.  
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**STATEMENT OF RELEVANCY**

**References AA to AD, AI to AK, and AQ to DA on Form PTO-1449:**

These references are discussed in the prior art part of the specification.

Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY DOCKET NO. 293024US0PCT		SERIAL NO. 10/584,766	
<div style="position: relative; width: 100px; height: 100px; margin: 0 auto;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; border: 1px solid black; border-radius: 50%; text-align: center; line-height: 100px;">             OIPE JAN 11 2007 PATENT &amp; TRADEMARK OFFICE           </div> </div>				APPLICANT Stefan BEISSERT, et al.			
				FILING DATE June 28, 2006		GROUP 1646	
<b>U.S. PATENT DOCUMENTS</b>							
EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE	
	AA	5,580,859	12/03/1996	Philip L. FELGNER, et al.			
	AB	5,589,466	12/31/1996	Philip L. FELGNER, et al.			
	AC	4,394,448	07/19/1983	Francis C. SZOKA, Jr., et al.			
✓	AD	2003/0114526 A1	06/19/2003	Barton James BRADBURY, et al.			
	AE						
	AF						
	AG						
	AH						
<b>FOREIGN PATENT DOCUMENTS</b>							
	DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES NO			
	AI	WO 94/29469	12/22/1994	WIPO			
	AJ	WO 97/00957	01/09/1997	WIPO			
	AK	WO 94/24274	10/27/1994	WIPO			
✓	AL	WO 00/06188	02/10/2000	WIPO			
	AM						
	AN						
	AO						
	AP						
<b>OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)</b>							
	AQ	Louis FLAMAND, et al., "Human Herpesvirus-6 Enhances Natural Killer Cell Cytotoxicity Via IL-15", THE JOURNAL OF CLINICAL INVESTIGATION, Vol. 97, No. 6, March 1996, pages 1373-1381					
	AR	Michiya SHINOZAKI, et al., "IL-15, a survival factor for kidney epithelial cells, counteracts apoptosis and inflammation during nephritis", THE JOURNAL OF CLINICAL INVESTIGATION, Vol. 109, No. 7, April 2002, pages 951-960					
	AS	A. BERRY, et al., "A prototype computer system for <i>de novo</i> protein design", BIOCHEMICAL SOCIETY TRANSACTIONS, Vol. 22, 1994, pages 1033-1036					
	AT	Shoshana J. WODAK, "Computer-Aided Design in Protein Engineering", ANNALS NEW YORK ACADEMY OF SCIENCES, 1987, pages 1-13					
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	AV	John M. OSTRESH, et al., "Generation and Use of Nonsupport-Bound Peptide and Peptidomimetic Combinatorial Libraries", METHODS IN ENZYMOLOGY, Vol. 267, 1996, pages 220-234					
	AW	Barbara DÖRNER, et al., "The Synthesis of Peptidomimetic Combinatorial Libraries Through Successive Amide Alkylations", BIOORGANIC & MEDICINAL CHEMISTRY, Vol. 4, No. 5, 1996, pages 709-715					
	AX	Simona CAPSONI, et al., "Alzheimer-like neurodegeneration in aged antinerve growth factor transgenic mice", PNAS, Vol. 97, No. 12, June 6, 2000, pages 6826-6831					
	AY	Silvia BIOCCA, et al., "Expression and targeting of intracellular antibodies in mammalian cells", THE EMBO JOURNAL, Vol. 9, No. 1, 1990, pages 101-108					
	AZ	Frank J. GIORDANO, et al., "Intracoronary gene transfer of fibroblast growth factor-5 increases blood flow and contractile function in an ischemic region of the hearth", NATURE MEDICINE, Vol. 2, No. 5, May 1996, pages 534-539				<input type="checkbox"/> Additional References sheet(s) attached	
Examiner							
*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

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LIST OF REFERENCES CITED BY APPLICANT		APPLICANT  Stefan BEISSERT, et al.	
		FILING DATE  June 28, 2006	GROUP  1646
<b>OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)</b>			
	BA	Wolfgang SCHAPER, et al., "Molecular Mechanisms of Coronary Collateral Vessel Growth", CIRCULATION RESEARCH, Vol. 79, 1996, pages 1-22	
	BB	W. French ANDERSON, "Human Gene Therapy", SCIENCE, Vol. 256, May 8, 1992, pages 808-813	
	BC	Jeffrey M. ISNER, et al., "Clinical evidence of angiogenesis after arterial gene transfer of phVEGF <sub>165</sub> in patient with ischaemic limb", THE LANCET, Vol. 348, August 10, 1996, pages 370-374	
	BD	Judith MÜHLHAUSER, et al., "Replication-Deficient Recombinant Adenovirus Vector Induces Angiogenesis In Vivo", CIRCULATION RESEARCH, Vol. 77, 1995, pages 1-29	
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	BK	Wolfgang SCHAPER, et al., "Therapeutic targets in cardiovascular disorders", CURRENT OPINION IN BIOTECHNOLOGY, Vol. 7, 1996, pages 635-640	
	BL	Jenny VALLADEAU, et al., "Langerin, a Novel C-Type Lectin Specific to Langerhans Cells, Is an Endocytic Receptor that Induces the Formation of Birbeck Granules", IMMUNITY, Vol. 12, January 2000, pages 71-81	
	BM	Stephen R. KELSALL, et al., "Metastatic Cutaneous Melanoma Promoted by Ultraviolet Radiation in Mice with transgene-initiated Low Melanoma Susceptibility", CANCER RESEARCH, Vol. 58, 1998, pages 4061-4065	
	BN	Michele K. HIBBARD, et al., "PLAG1 Fusion Oncogenes in Lipoblastoma", CANCER RESEARCH, Vol. 60, 2000, pages 4869-4872	
	BO	Andrew P. McMAHON, et al., "The <i>Wnt-1 (int-1)</i> Proto-Oncogene Is Required for Development of a Large Region of the Mouse Brain", CELL, Vol. 62, September 21, 1990, pages 1073-1085	
	BP	Martin HOOPER, et al., "HPRT-deficient (Lesch-Nyhan) mouse embryos derived from germline colonization by cultured cells", NATURE, Vol. 326, March 19, 1987, pages 292-295	
	BQ	Thomas C. DOETSCHMAN, et al., "The <i>in vitro</i> development of blastocyst-derived embryonic stem cell lines: formation of visceral yolk sac, blood islands and myocardium", J. EMBRYOL. EXP. MORPH., Vol. 87, 1985, pages 27-45	
	BR	Elizabeth ROBERTSON, et al., "Germ-line transmission of genes introduced into cultured pluripotent cells by retroviral vector", NATURE, Vol. 323, October 2, 1986, pages 445-448	
	BS	Yuan ZHUANG, et al., "The Helix-Loop-Helix Gene E2A Is Required for B Cell Formation", CELL, Vol. 79, December 2, 1994, pages 875-884	
	BT	Kenneth H. GRABSTEIN, et al., "Cloning of a T Cell Growth Factor that Interacts with the $\beta$ chain of the Interleukin-2 Receptor", SCIENCE, Vol. 264, May 13, 1994, pages 965-968	
	BU	Xiaohong ZHANG, et al., "Potent and Selective Stimulation of Memory-Phenotype CD8 <sup>+</sup> T Cells In Vivo By IL-15", IMMUNITY, Vol. 8, May 1998, pages 591-599	
	BV	T. A. WALDMANN, et al., "THE MULTIFACETED REGULATION OF INTERLEUKIN-15 EXPRESSION AND THE ROLE OF THIS CYTOKINE IN NK CELL DIFFERENTIATION AND HOST RESPONSE TO INTRACELLULAR PATHOGENS 1", ANN. REV. IMMUNOL., 1999, pages 19-49	
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	BX	Mary K. KENNEDY, et al., "Reversible Defects in Natural Killer and Memory CD8 T Cell Lineages in Interleukin 15-deficient Mice", J. EXP. MED., Vol. 191, No. 5, March 6, 2000, pages 771-780	
	BY	Todd A. FEHNIGER, et al., "Fatal Leukemia in Interleukin 15 Transgenic Mice Follows Early Expansions in Natural Killer and Memory Phenotype CD8 <sup>+</sup> T Cells", J. EXP. MED., Vol. 193, No. 2, January 15, 2001, pages 219-231	
	BZ	Adrian HAYDAY, et al., "Intraepithelial lymphocytes: exploring the Third Way in immunology", NATURE IMMUNOLOGY, Vol. 2, No. 11, November 2001, pages 997-1003	
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	CA	Hans DOOMS, et al., "Quiescence-Inducing and Antiapoptotic Activities of IL-15 Enhance Secondary CD4 <sup>+</sup> T Cell Responsiveness to Antigen 1", THE JOURNAL OF IMMUNOLOGY, Vol. 161, 1998, pages 2141-2150					
	CB	Sang-Kyu YE, et al., "Differential Roles of Cytokine Receptors in the Development of Epidermal $\gamma\delta$ T Cells", THE JOURNAL OF IMMUNOLOGY, Vol. 167, 2001, pages 1929-1934					
	CC	An De CREUS, et al., "Developmental and Functional Defects of Thymic and Epidermal V $\gamma$ 3 Cells in IL-15-Deficient and IFN Regulatory Factor-1-Deficient Mice", THE JOURNAL OF IMMUNOLOGY, Vol. 168, 2002, pages 6486-6493					
	CD	James P. LODOLCE, et al., "IL-15 Receptor Maintains Lymphoid Homeostasis by Supporting Lymphocyte Homing and Proliferation", IMMUNITY, Vol. 9, November 1998, pages 669-676					
	CE	LeBris S. QUINN, et al., "Interleukin-15: A Novel Anabolic Cytokine for Skeletal Muscle", ENDOCRINOLOGY, Vol. 136, No. 8, 1995, pages 3669-3672					
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	CG	Silvia BULFONE-PAUS, et al., "Interleukin-15 protects from lethal apoptosis <i>in vivo</i> ", NAT. MED., Vol. 3, 1997, 5 pages.					
	CH	René RÜCKERT, et al., "Inhibition of Keratinocyte Apoptosis by IL-15: A New Parameter in the Pathogenesis of Psoriasis?", THE JOURNAL OF IMMUNOLOGY, Vol. 165, 2000, pages 2240-2250					
	CI	Hans-Christian REINECKER, et al., "Intestinal Epithelial Cells Both Express and Respond to Interleukin 15", GASTROENTEROLOGY, Vol. 111, 1996, pages 1706-1713					
	CJ	Richard N. BAMFORD, et al., "Interleukin (IL) 15/IL-T production by the adult T-cell leukemia cell line HuT-102 is associated with a human T-cell lymphotropic virus type I R region/IL-15 fusion message that lacks many upstream AUGs that normally attenuate IL-15 mRNA translation", PROC. NATL. ACAD. SCI. USA, Vol. 93, April 1996, pages 2897-2902					
	CK	Adrian ONU, et al., "Regulation of IL-15 Secretion via the Leader Peptide of Two IL-15 Isoforms", THE JOURNAL OF IMMUNOLOGY, Vol. 158, 1997, pages 255-262					
	CL	Yutaka TAGAYA, et al., "Generation of secretable and nonsecretable interleukin 15 isoforms through alternate usage of signal peptides", PROC. NATL. ACAD. SCI. USA, Vol. 94, December 1997, pages 14444-14449					
	CM	Mansour MOHAMADZADEH, et al., "Ultraviolet B Radiation Up-Regulates the Expression of IL-15 in Human Skin", THE JOURNAL OF IMMUNOLOGY, Vol. 155, 1995, pages 4492-4496					
	CN	Andrew BLAUVELT, et al., "Interleukin-15 mRNA Is Expressed by Human Keratinocytes, Langerhans Cells, and Blood-Derived Dendritic Cells and Is Downregulated by Ultraviolet B Radiation", J INVEST DERMATOL, Vol. 106, 1996, pages 1047-1052					
	CO	Robert VASSAR, et al., "Tissue-specific and differentiation-specific expression of a human K14 keratin gene in transgenic mice", PROC. NATL. ACAD. SCI. USA, Vol. 86, March 1989, pages 1563-1567					
	CP	Mitinori SAITOU, et al., "Inhibition of skin development by targeted expression of a dominant-negative retinoic acid receptor", NATURE, Vol. 374, March 1995, pages 159-162					
	CQ	Stephan GRABBE, et al., "Removal of the Majority of Epidermal Langerhans Cells by Topical or Systemic Steroid Application Enhances the Effector Phase of Murine Contact Hypersensitivity", THE JOURNAL OF IMMUNOLOGY, Vol. 155, 1995, pages 4207-4217					
	CR	Annette MEHLING, et al., "Overexpression of CD40 Ligand in Murine Epidermis Results in Chronic Skin Inflammation and Systemic Autoimmunity", J. EXP. MED., Vol. 194, No. 5, September 3, 2001, pages 615-628					
	CS	Chia Chi KU, et al., "Control of Homeostasis of CD8 <sup>+</sup> Memory T Cells by Opposing Cytokines", SCIENCE, Vol. 288, April 28, 2000, pages 675-678					
	CT	Adam D. JUDGE, et al., "Interleukin 15 Controls both Proliferation and Survival of a Subset of Memory-Phenotype CD8 <sup>+</sup> T Cells", J. EXP. MED., Vol. 196, No. 7, October 7, 2002, pages 935-946					
	CU	Foo Y. LIEW, "The role of innate cytokines in inflammatory response", IMMUNOLOGY LETTERS, Vol. 85, 2003, pages 131-134					
	CV	Rebecca M. PORTER, "Mouse models for human hair loss disorders", J. ANAT., Vol. 202, 2003, pages 125-131					
	CW	Sven MÜLLER-RÖVER, et al., "Hair Follicle Apoptosis and Bcl-2", JOURNAL OF INVESTIGATIVE DERMATOLOGY SYMPOSIUM PROCEEDINGS, Vol. 4, 1999, pages 272-277					
	CX	Seshamma REDDY, et al., "Characterization of <i>Wnt</i> gene expression in developing and postnatal hair follicles and identification of <i>Wnt5a</i> as a target of Sonic hedgehog in hair follicle morphogenesis", MECHANISMS OF DEVELOPMENT, Vol. 107, 2001, pages 69-82					
	CY	K. S. STENN, et al., "Controls of Hair Follicle Cycling", PHYSIOLOGICAL REVIEWS, Vol. 81, No. 1, January 2001, pages 449-494					
	CZ	R. RÜCKERT, et al., "High-dose proinflammatory cytokines induce apoptosis of hair bulb keratinocytes <i>in vivo</i> ", BRITISH JOURNAL OF DERMATOLOGY, Vol. 143, 2000, pages 1036-1039					
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	DA	Gerd LINDER, et al., "Analysis of Apoptosis during Hair Follicle Regression (Catagen)", AMERICAN JOURNAL OF PATHOLOGY, Vol. 151, No. 6, December 1997, pages 1601-1617					
✓	DB	Gerd LINDER, et al., "Inhibition of Chemotherapy-Induced Keratinocyte Apoptosis <i>In Vivo</i> by an Interleukin-15-IgG Fusion Protein", JOURNAL OF INVESTIVATIVE DERMATOLOGY, XP000960618, Vol. 110, No. 4, April 1998, pages 457-458					
✓	DC	Marty E. SAWAYA, et al., "Effects of Finasteride on Apoptosis and Regulation of the Human Hair Cycle", JOURNAL OF CUTANEOUS MEDICINE AND SURGERY, XP002310223, Vol. 6, No. 1, January, 2002, pages 1-9					
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